

# TPS-L2



*US Model  
Canadian Model  
AEP Model  
UK Model  
E Model*

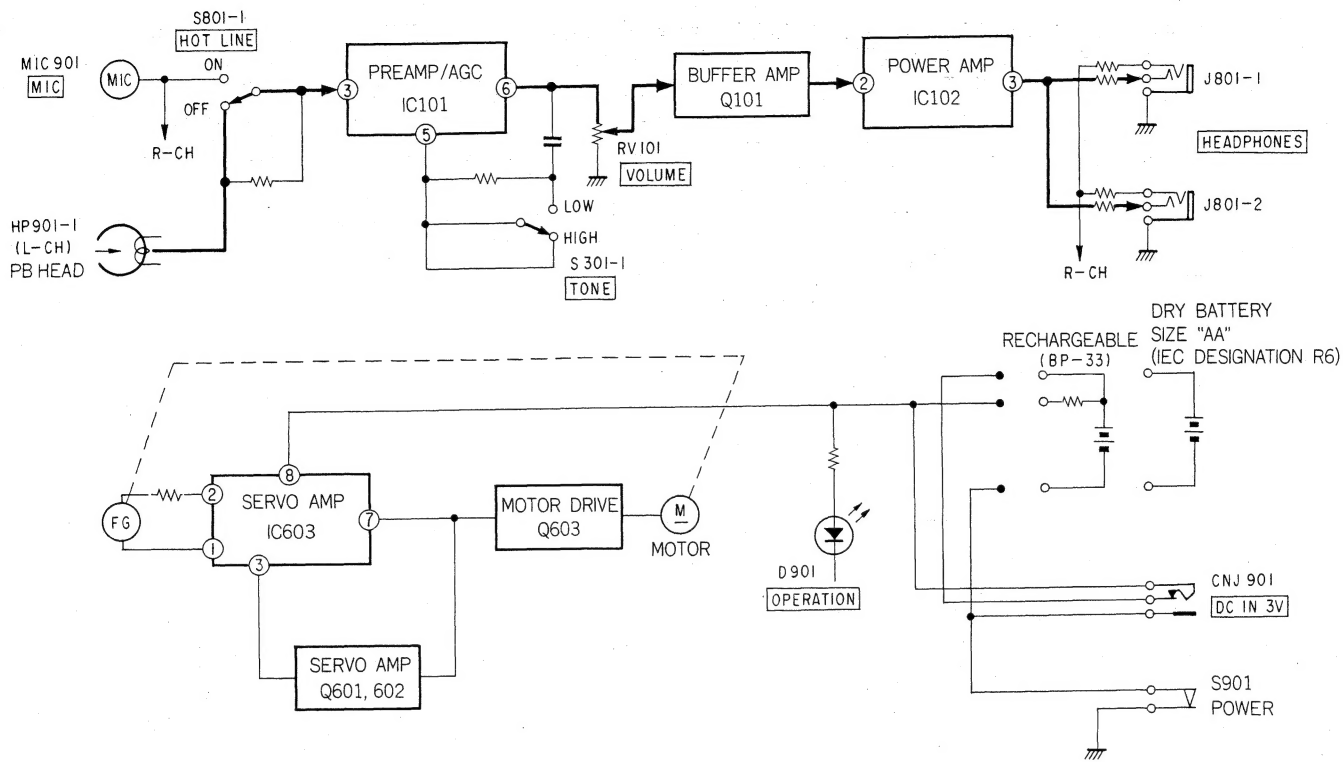
## STEREO CASSETTE PLAYER

### SPECIFICATIONS

<b>Tape Track:</b>	4-track 2-channel stereo	<b>Battery Life:</b>	Continuous playback hours: Approx. 3.5 hours with Eveready Heavy Duty Batteries No. 1215 Approx. 8 hours with Eveready Alkaline Batteries No. E91
<b>Fast Winding Time:</b>	Approx. 2 min. 30 sec. with Sony Cassette C-60	<b>Dimensions:</b>	Approx. 88 (w) x 133.5 (h) x 29 (d) mm 3 1/2 (w) x 5 5/16 (h) x 1 3/16 (d) inches not including projecting parts and controls
<b>Frequency Response:</b>	40 — 12,000 Hz	<b>Weight:</b>	Approx. 390 g, 13 7/8 oz including batteries
<b>Power Output:</b>	15 mW x 2 (at 10 % harmonic distortion) with headphones having impedance of 35 $\Omega$ at dc operation		
<b>Outputs:</b>	Two headphones jacks (stereo minijack) rated output 0.04 V (—26 dB) at load impedance 8 $\Omega$ load impedance 8 $\Omega$ or higher, and 300 $\Omega$ or lower		
<b>Power Requirements:</b>	3 V dc, two batteries size AA (IEC designation R6), or optional Sony Rechargeable Battery Pack BP-33 120 V ac, 60 Hz with optional Sony AC Power Adaptor AC-31 12 V car battery with optional Sony Car Battery Cord DCC-127A		
<b>Power Consumption:</b>	5 W (60 Hz) with Sony AC Power Adaptor AC-31		

**SONY**  
**SERVICE MANUAL**

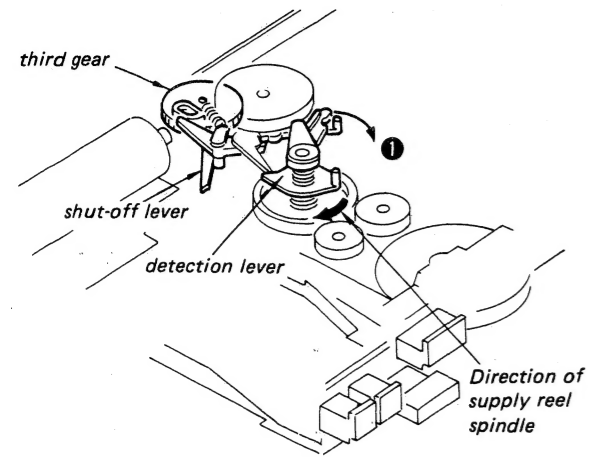
SECTION 1  
BLOCK DIAGRAM



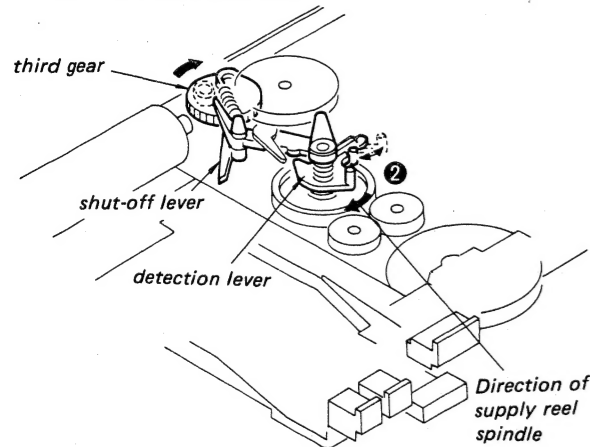
## SECTION 2 OPERATION DESCRIPTION

### AUTOMATIC SHUT-OFF MECHANISM

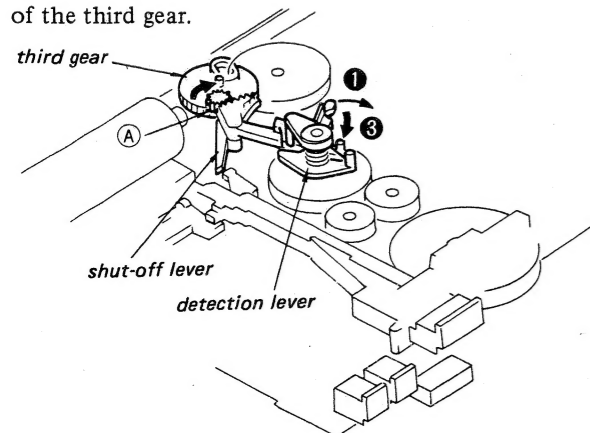
- **During FWD (or RECORD) operation**  
While the supply reel is rotating, the detection lever is always pulled in direction ①.



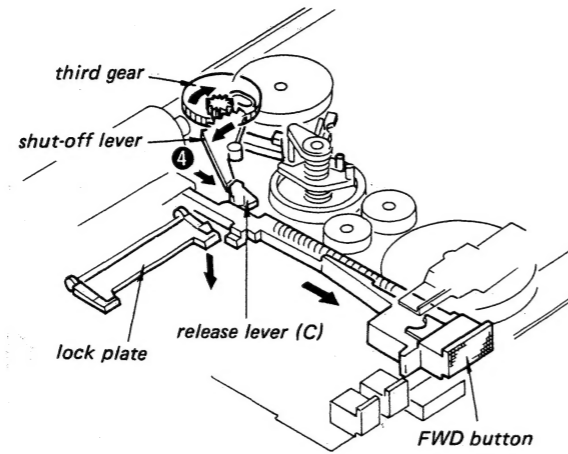
The shut-off lever is repeating the ② motion owing to the third gear rotation.



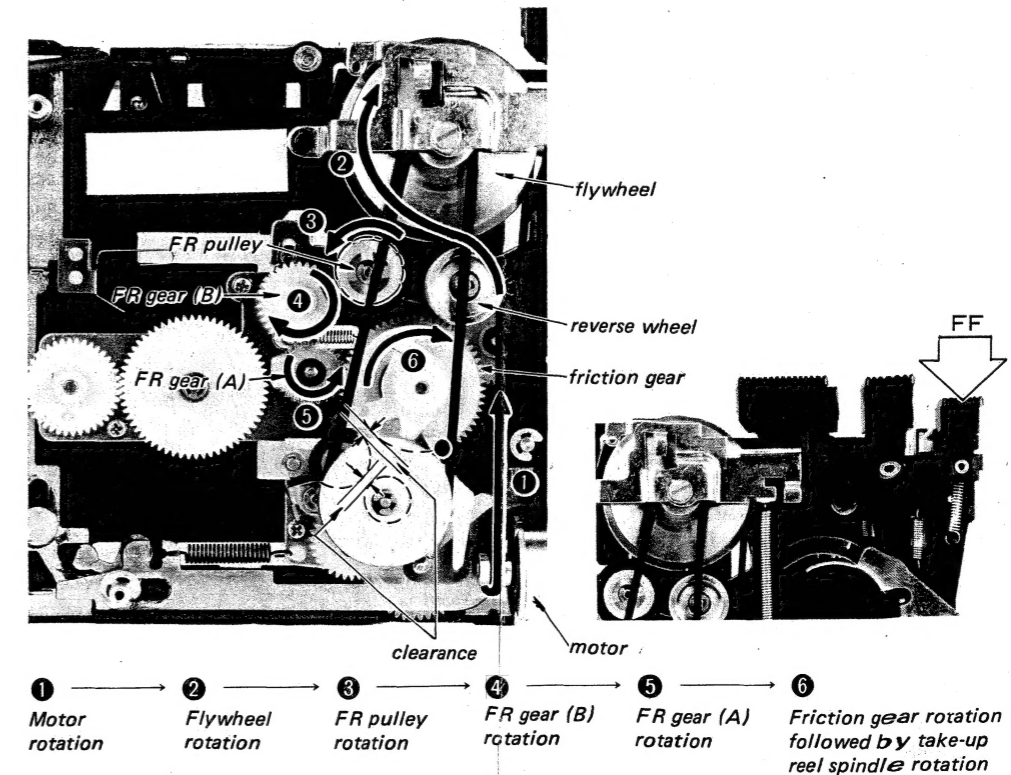
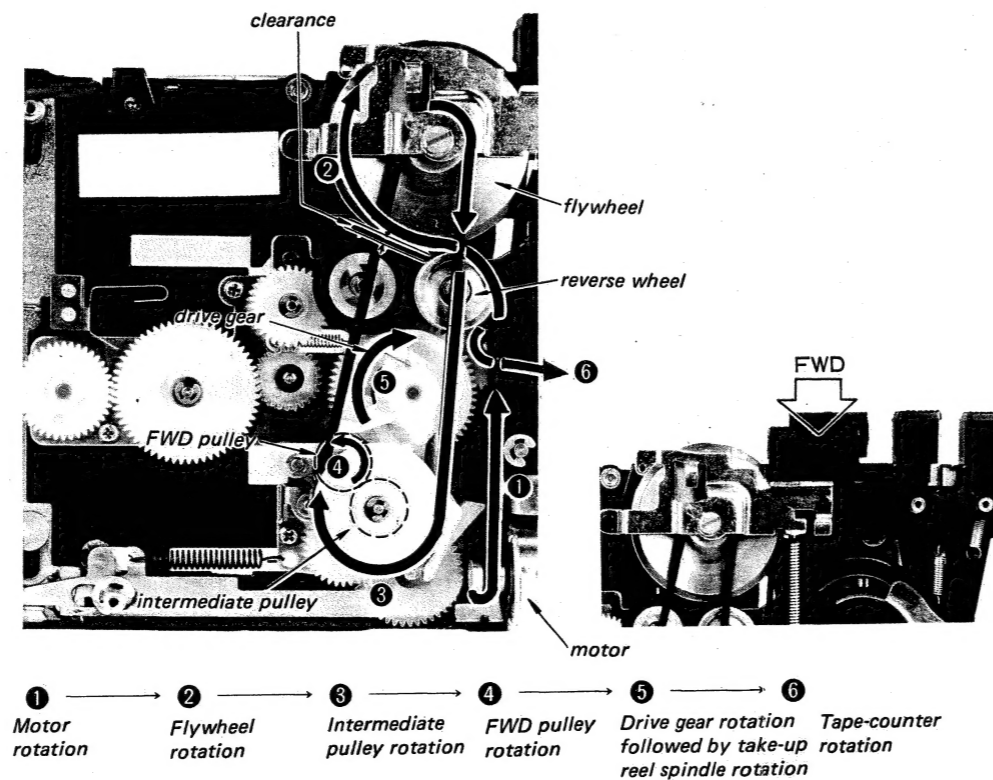
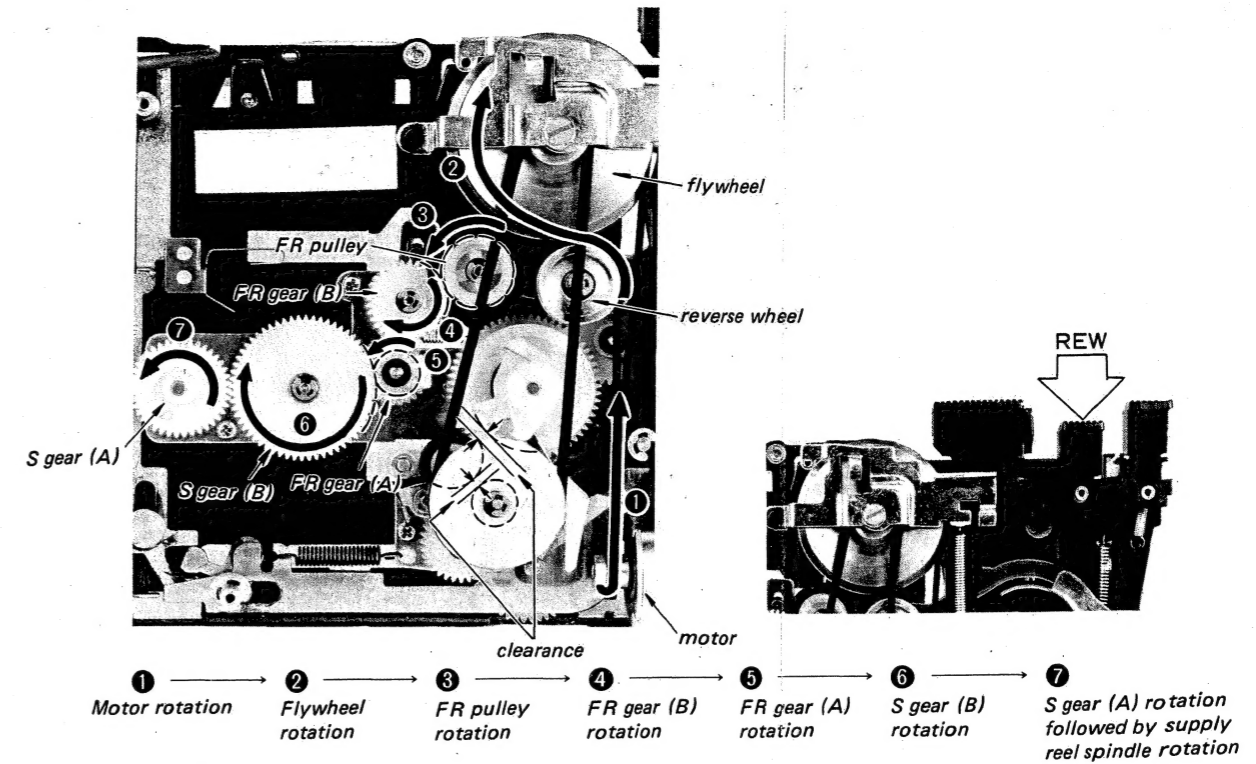
- **When the supply reel spindle stops: (end of the tape)**  
The detection lever is not pulled in direction ① but moves in direction ③ owing to the third gear rotation.  
The teeth of the shut-off lever mesh with the teeth of the third gear.



As the third gear turns further, the shut-off lever moves in direction ④, pushing the release lever (c) and releasing the FWD button. (RECORD button and FWD button are released in RECORD mode.)



### DIRECTION OF ROTATION

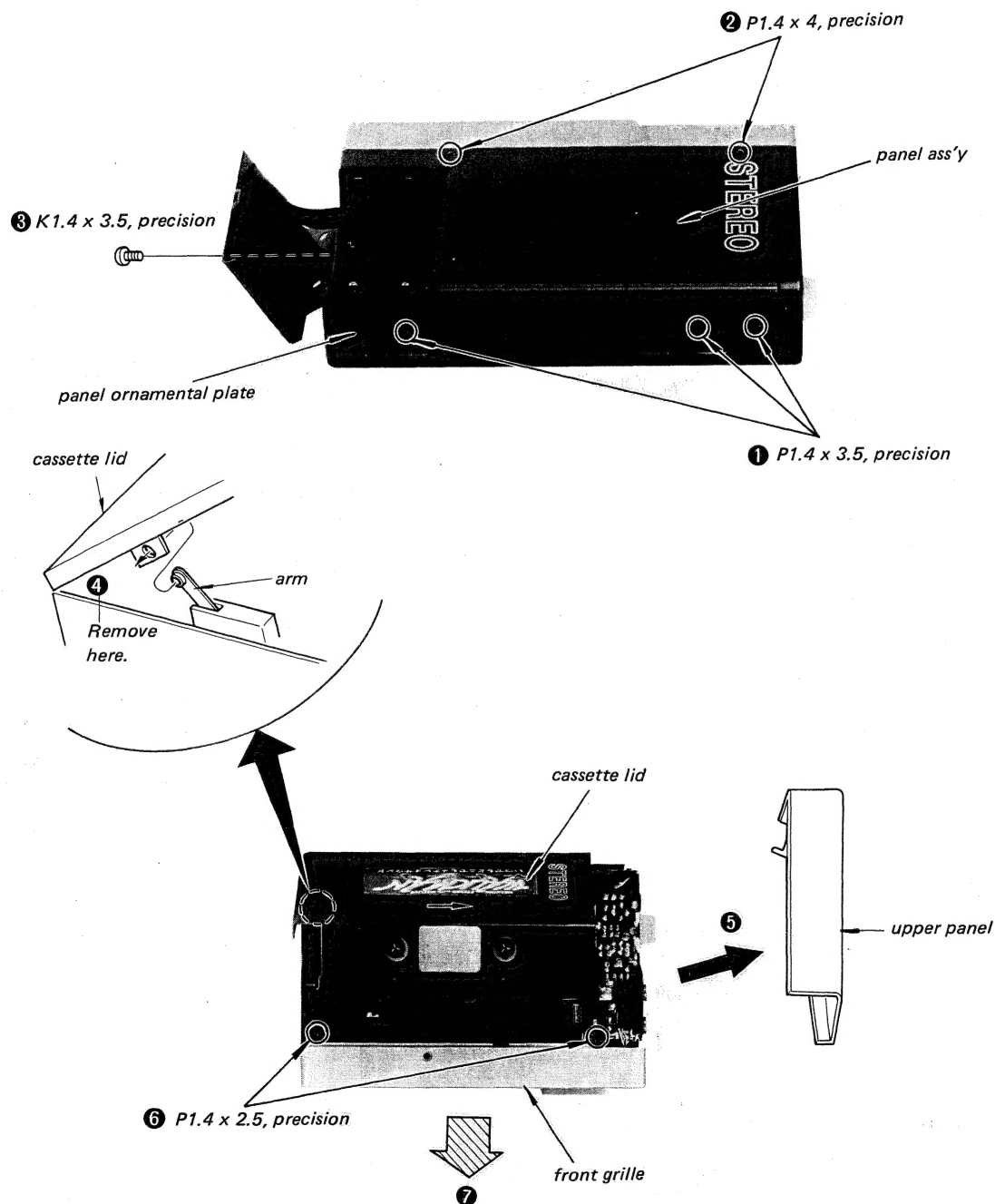


## SECTION 3 DISASSEMBLY

**Note:** Follow the disassembly procedure in the numerical order given.

### PANEL ORNAMENTAL PLATE/PANEL ASS'Y/UPPER PANEL/FRONT GRILLE ASS'Y

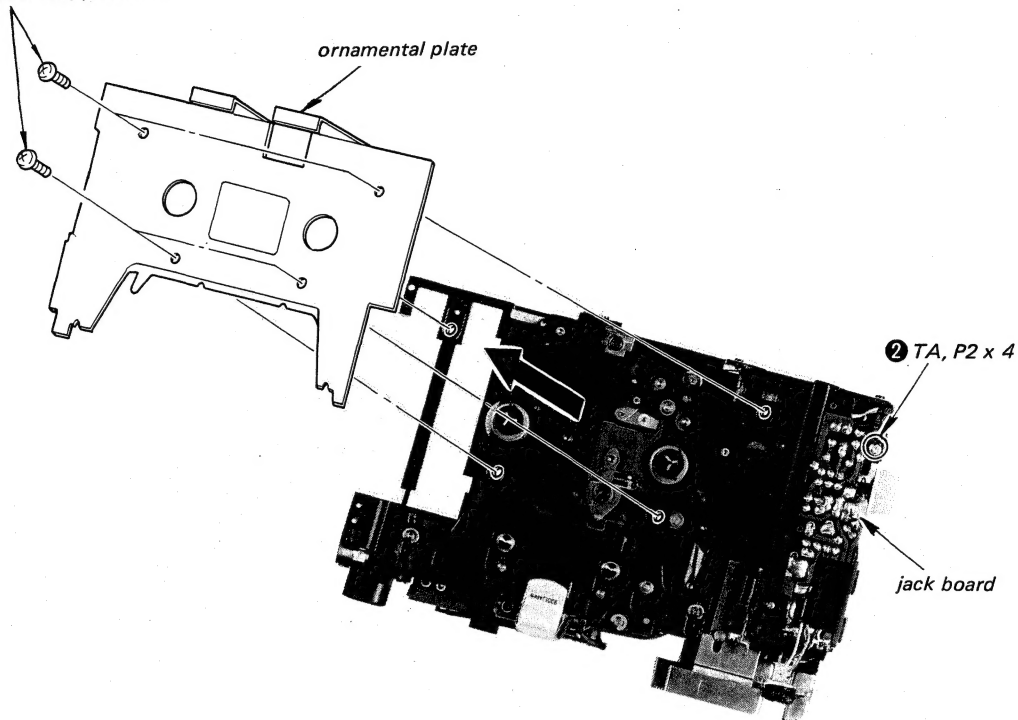
- Panel Ornamental Plate : ①
- Panel Ass'y : ②~④
- Upper Panel : ⑤
- Front Grille Ass'y : ⑥, ⑦



### ORNAMENTAL PLATE/JACK BOARD

- Ornamental Plate : ①
- Jack Board : ②

① P1.4 x 1.6, precision

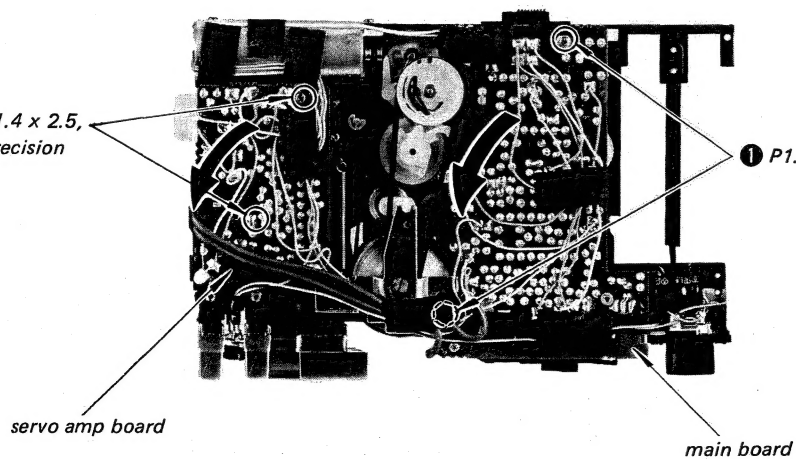


### MAIN BOARD/SERVO AMP BOARD


- Main Board : ①
- Servo Amp Board : ②

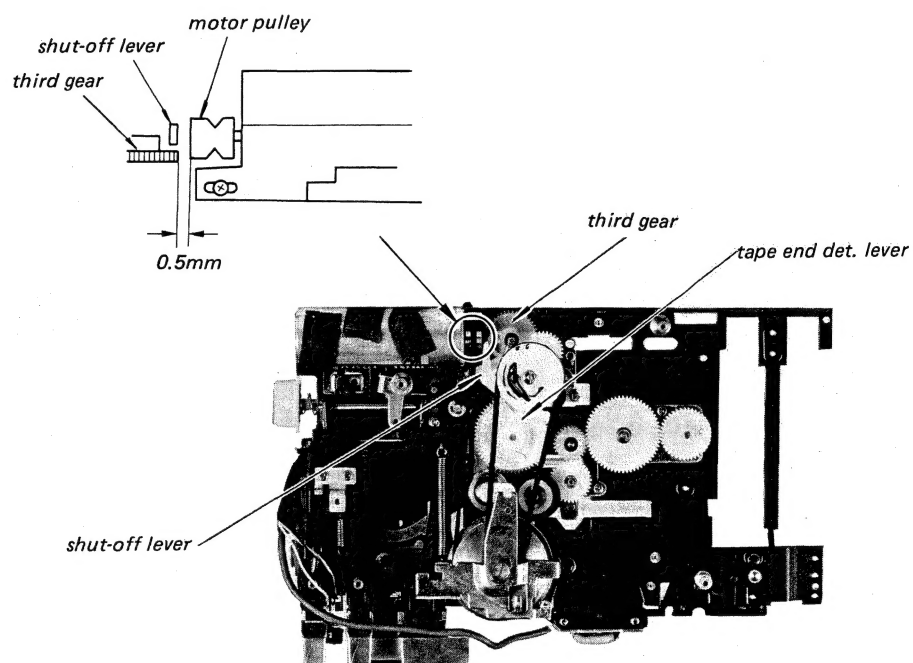
② P1.4 x 2.5, precision

① P1.4 x 2.5, precision



**CAUTION WHEN INSTALLING MOTOR**

Make sure part marked  is just 0.5mm long. Otherwise, auto-shut-off mechanism may operate before end of tape.



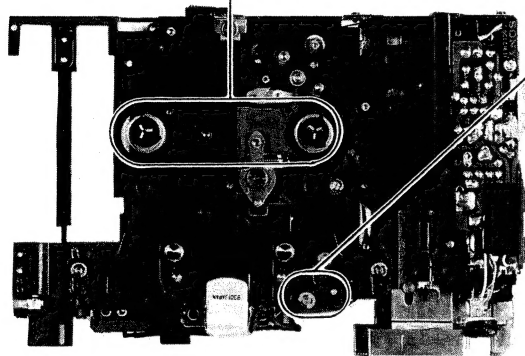
## SECTION 4 ADJUSTMENTS

### 4-1. MECHANICAL ADJUSTMENTS

#### Torque Measurement

Power Supply Voltage: 2.5V dc

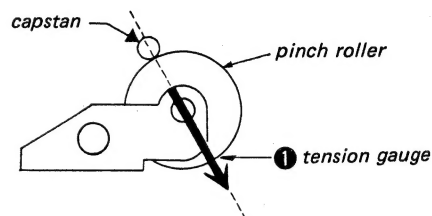
	SONY torque meter	Meter reading
FWD	CQ-102	22.5 – 45g-cm
FF, REW CUE, REV	CQ-201	55g-cm or more
Back tension	CQ-102	2 – 3.5g-cm



#### Pinch Roller Pressure Measurement

Mode: playback

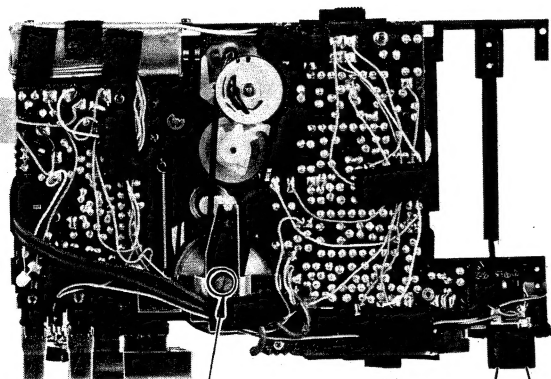
- 2 Slowly return the pinch roller and read the tension gauge just when the pinch roller starts rotating.



200 – 300g  
(7 – 10.6 oz)

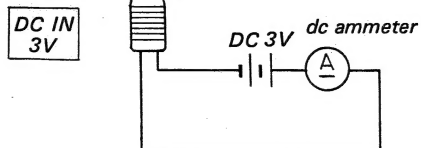
#### Flywheel Thrust Play Adjustment

– Playback Mode –



thrust screw

1. Turn the thrust screw counterclockwise until the screw tip leaves from the flywheel shaft.
2. Gradually turn the thrust screw clockwise to the position where the motor current suddenly increases.
3. Then, turn the thrust screw counterclockwise about  $\frac{1}{4}$  turn from the position obtained in step 2.
4. Secure the thrust screw with locking compound.



## 4-2. ELECTRICAL ADJUSTMENTS

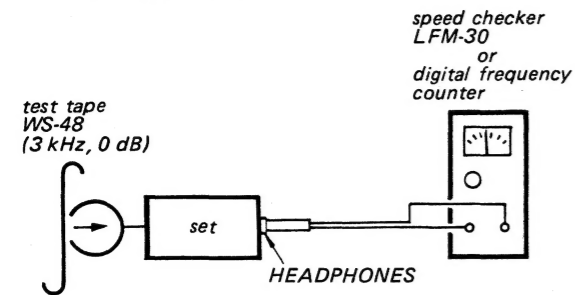
### Tape Speed Adjustment

#### Setting:

VOLUME control: mechanical mid

#### Procedure:

Mode: playback

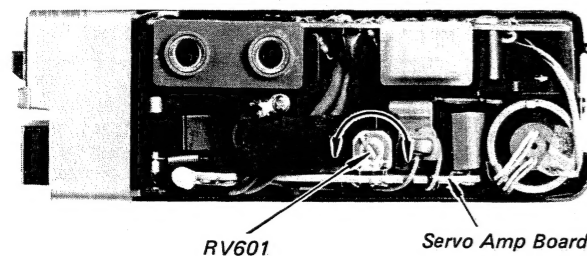


#### Specification:

Speed checker	Digital frequency counter
$\pm 2\%$	2,940 - 3,060Hz

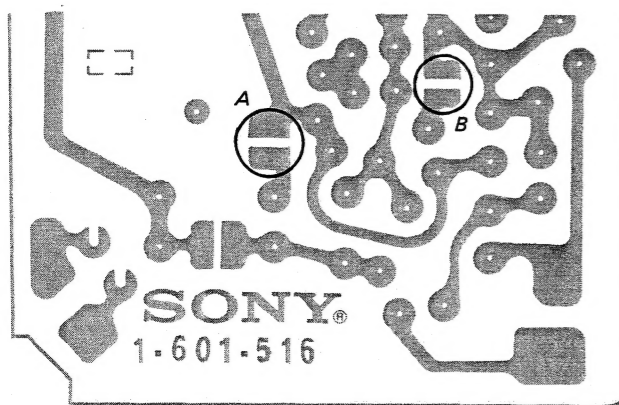
- 1) Connect the patterns marked "A" before this adjustment.
- 2) When adjustment is impossible by turning RV601, connect the patterns marked "B".

#### Adjustment Location:



RV601

Servo Amp Board



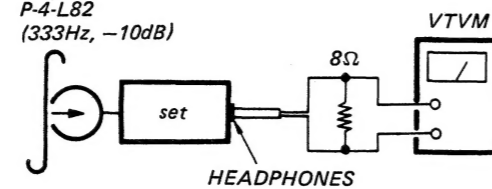
### Playback Level Adjustment

#### Setting:

VOLUME: maximum

#### Procedure:

test tape  
P-4-L82  
(333Hz, -10dB)

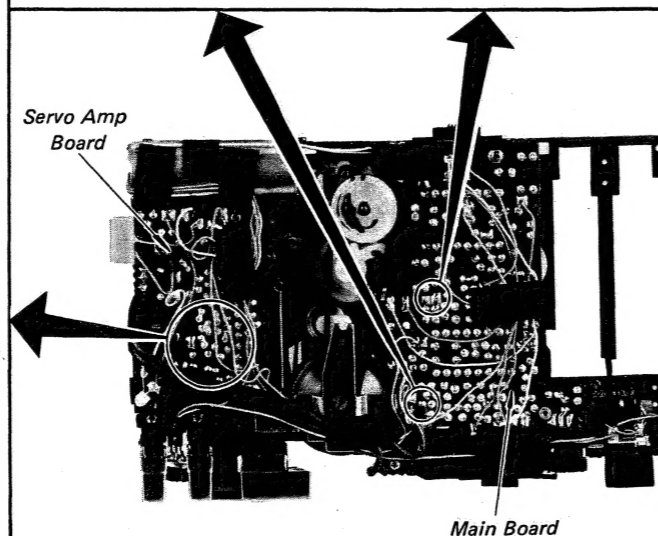
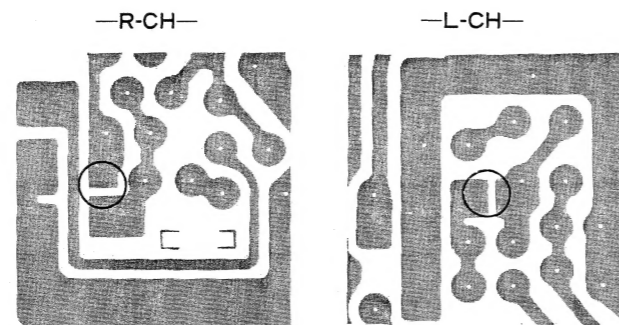


#### Specification:

Level difference between channels:  
less than 3dB

- 1) In case the specification is not met, connect the patterns of channel indicating higher level.
- 2) Check that the HEADPHONES levels do not change in playback mode while changing the mode from playback to stop several times.

#### Adjustment Location:



Servo Amp Board

Main Board

### Playback Head Azimuth Adjustment

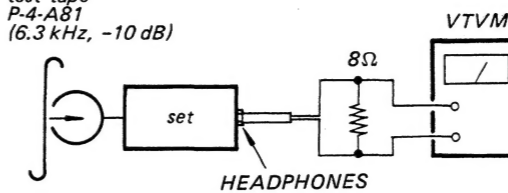
#### Setting:

VOLUME control: mechanical mid

#### Procedure:

1. Mode: playback

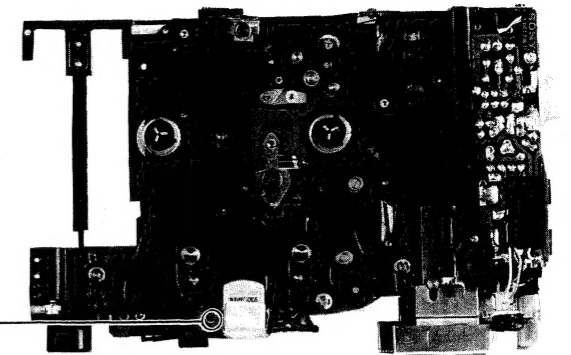
test tape  
P-4-A81  
(6.3 kHz, -10 dB)



2. Turn the adjustment screw for maximum VTVM reading.

**Note:**

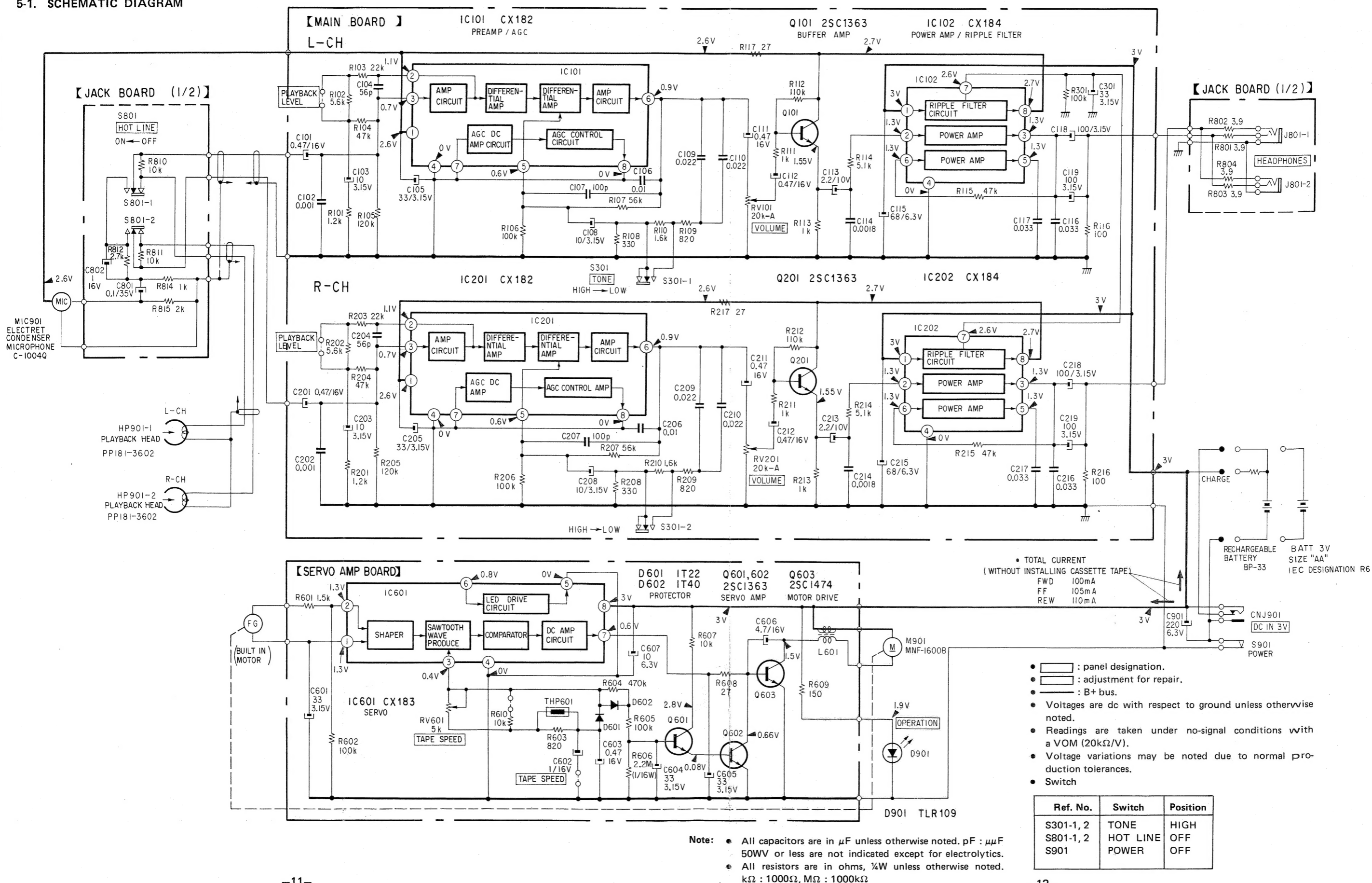
- Several peaks may appear, but take the maximum.
- Finish turning the adjustment screw clockwise direction.



# SECTION 5 DIAGRAMS

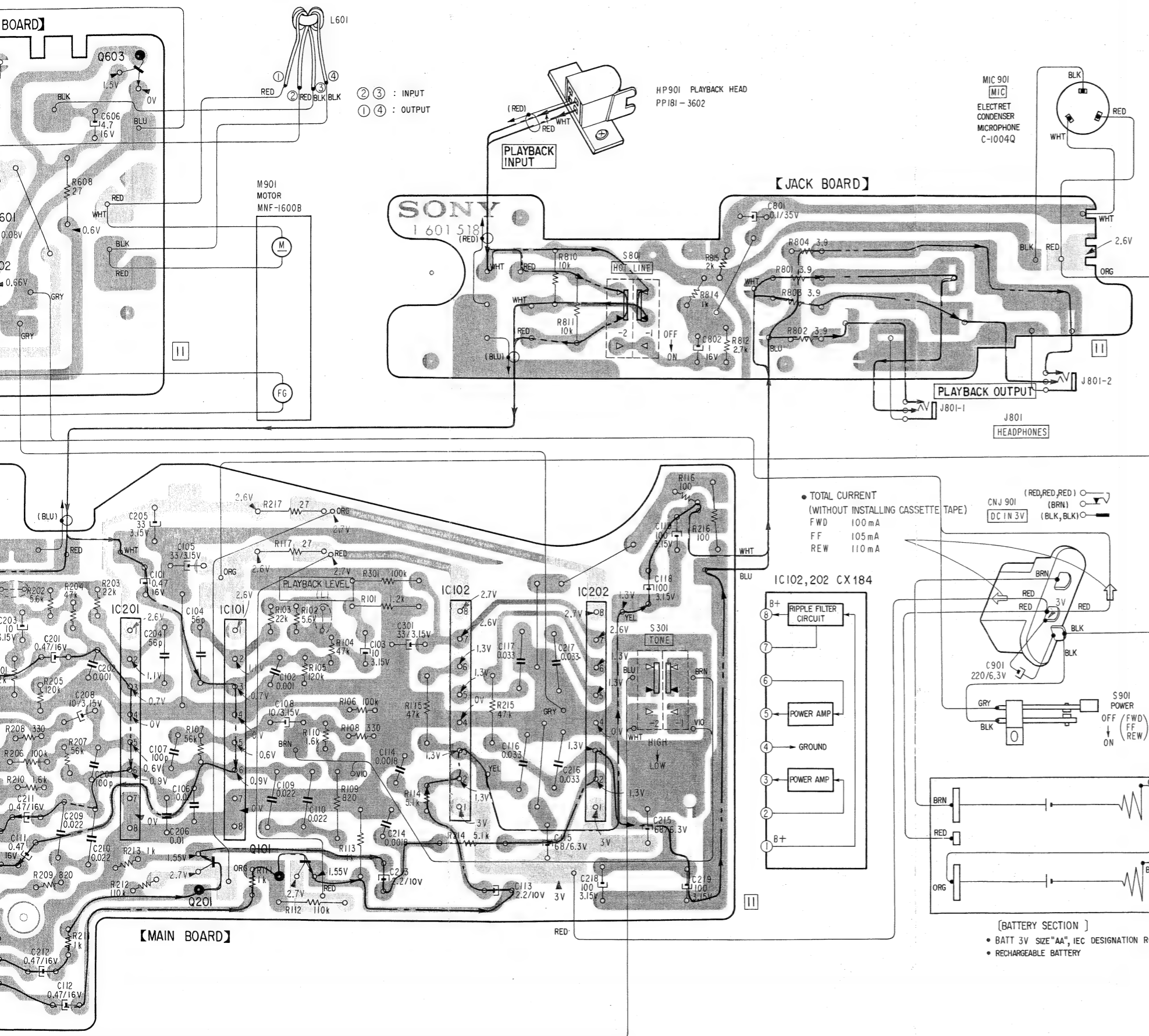
TPS-L2 TPS-L2

## 5-1. SCHEMATIC DIAGRAM



TPS-L2      TPS-L2

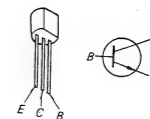
1000



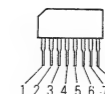
- **Replacement Semiconductors**

For replacement, use semiconductors except in ( ).

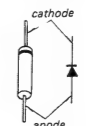
Q101, 201) : 2SC1364 (2SC1363)  
Q601, 602) : 2SC1364 (2SC1363)  
Q603 : 2SC1474



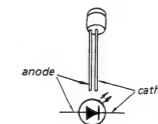
IC101, 201 : CX182  
IC102, 202 : CX184  
IC601 : CX183



D601: 1T22AM (1T22)  
D602: 1S1555 (1T40)

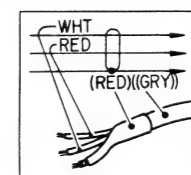


**D901: TLR109**



**Note:**

- Color code of sleeving over the end of the jacket.



- ○ — : parts extracted from the component side.
- ■ ■ ■ : B+ pattern.
- —→ : signal path (playback)
- — ■ —→ : L-CH signal path
- — ■ ■ —→ : R-CH signal path
- —→ : COMMON

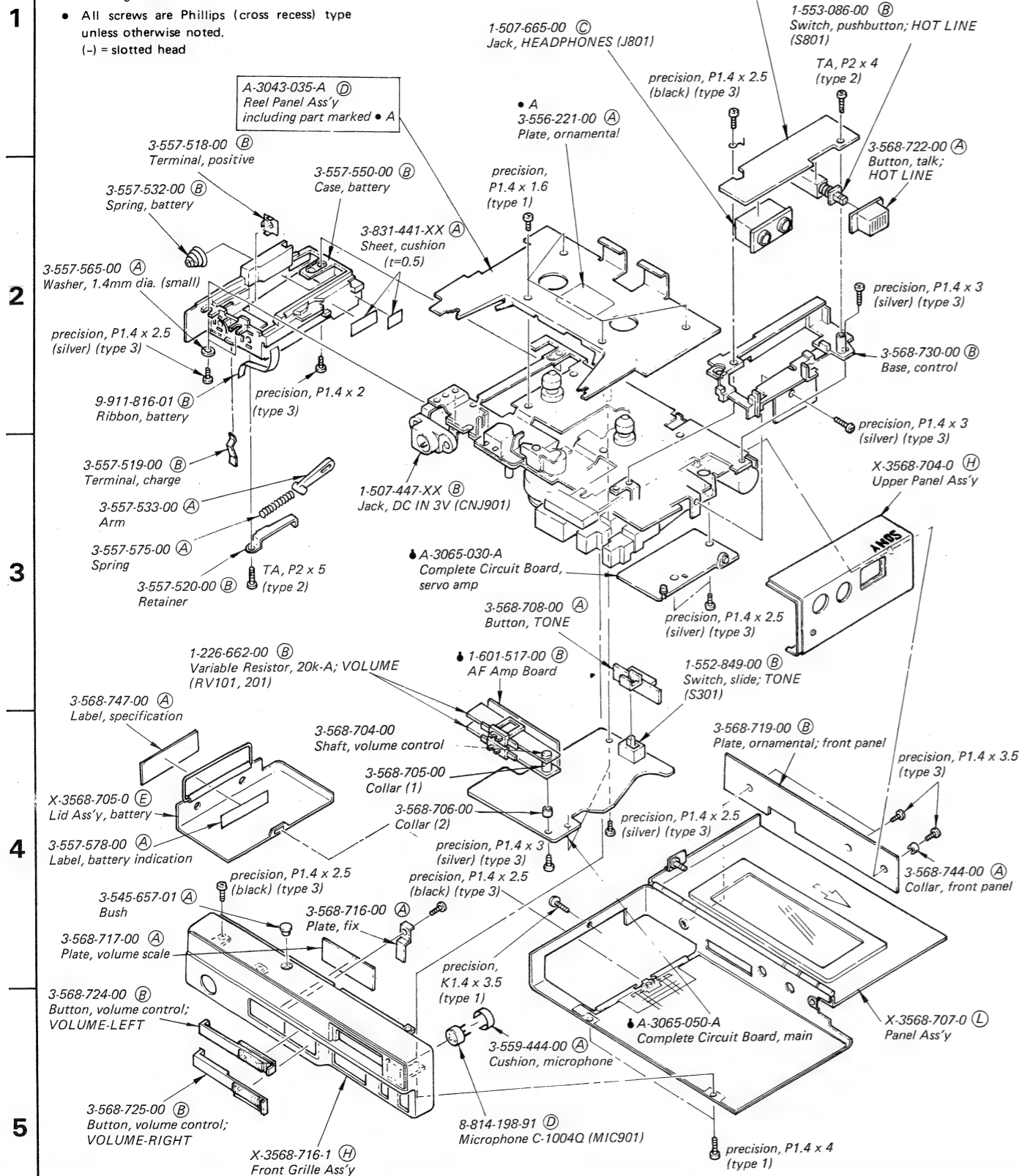
# SECTION 6 EXPLODED VIEWS

6-1.

## Note:

- Items marked "A" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted. (-) = slotted head

- Circled letters (A to Z) are applicable to European models only.
- Refer to page 22 for dimensions and part No. of precision screws.

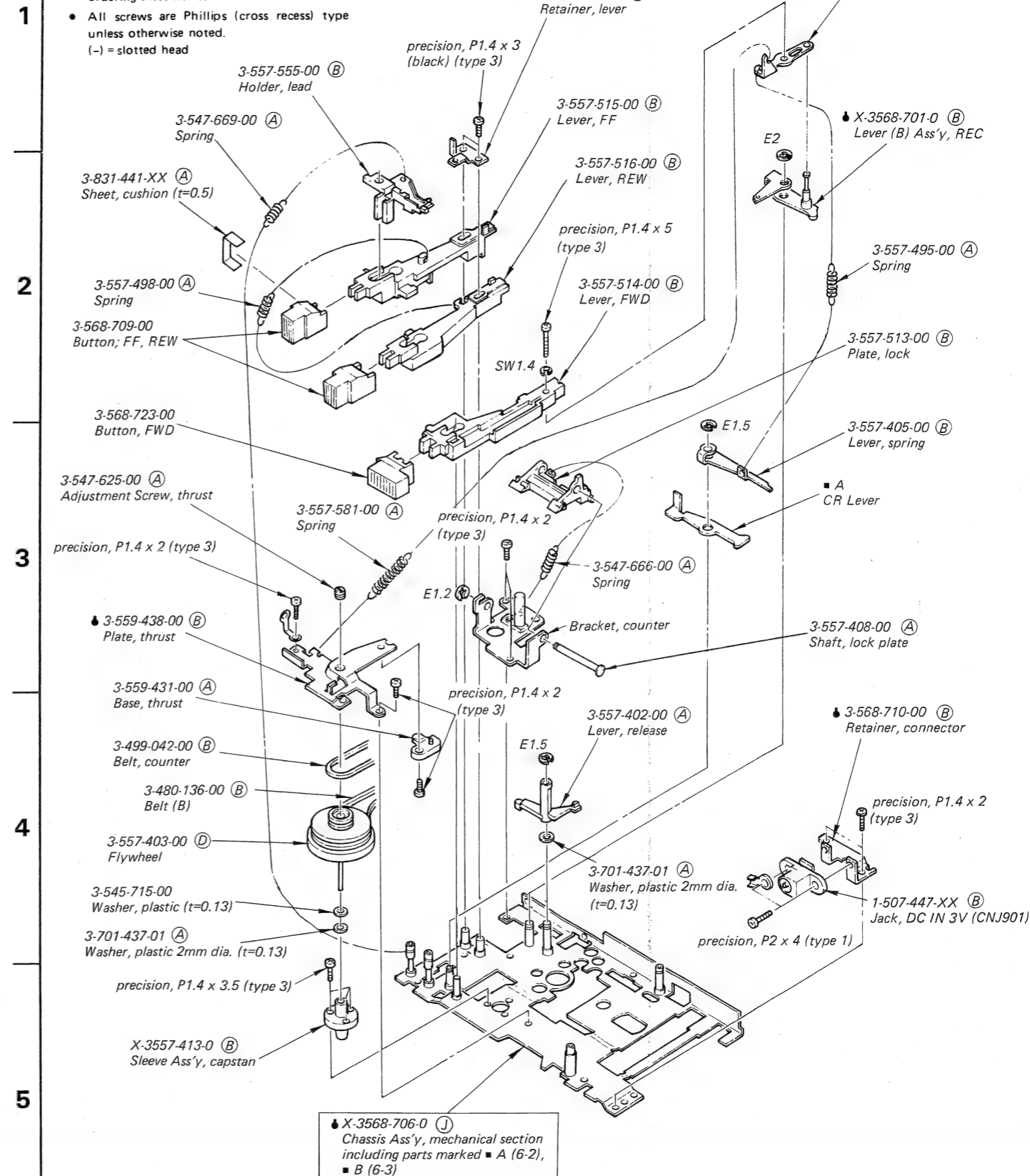


6-2.

## Note:

- Items marked "A" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted. (-) = slotted head

- Circled letters (A to Z) are applicable to European models only.
- Refer to page 22 for dimensions and part No. of precision screws.



6-3.

## Note:

- Items marked "A" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted. (-) = slotted head

8-829-373-0 Playback H (HP901)

3-568-710-0 Paper

3-560-327-0 Spring, heat

3-701-437-0 Washer, plate

-17-

-18-

ELECTRICAL PARTS LIST

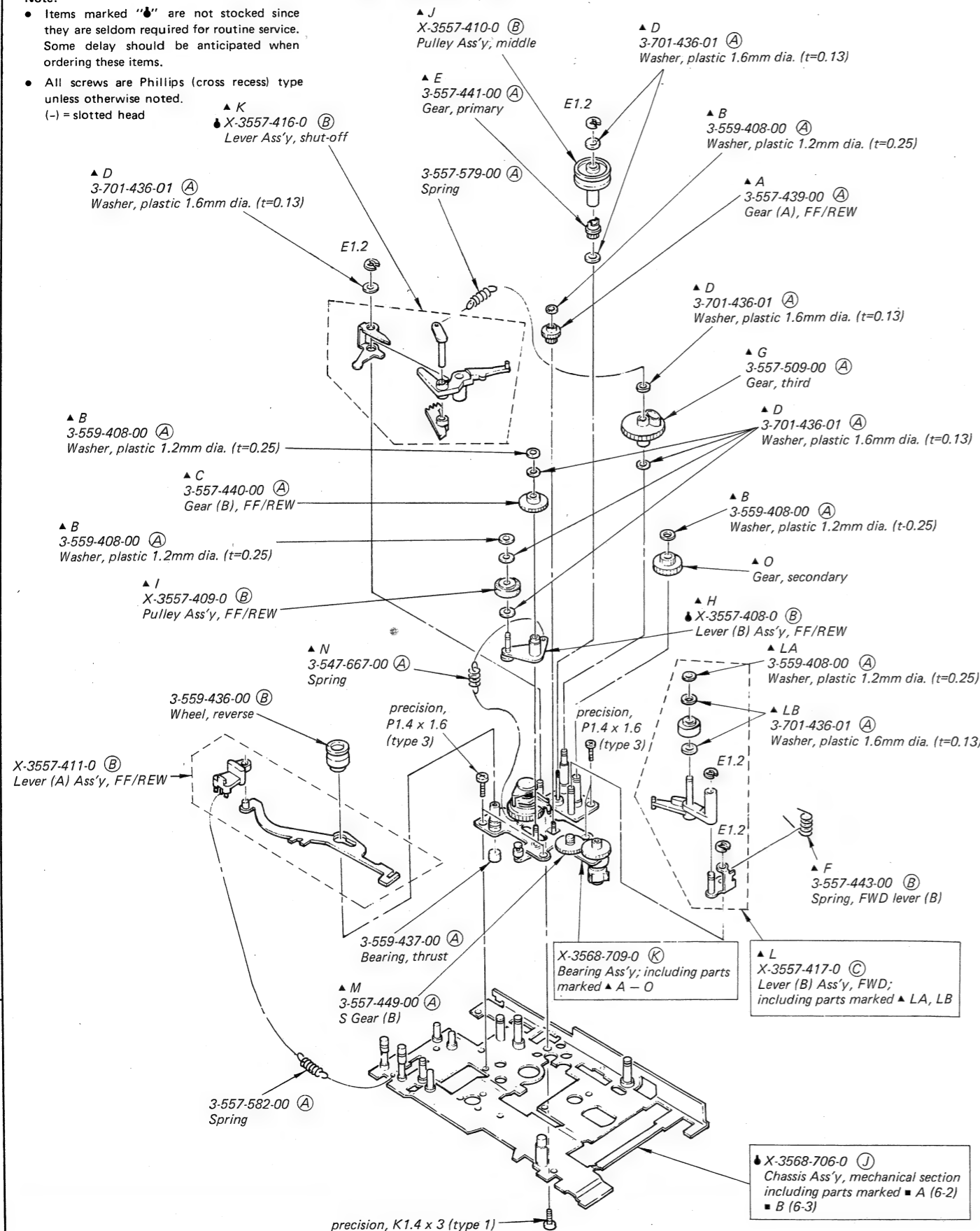
6-4.

Note:

- Items marked "▲" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All screws are Phillips (cross recess) type unless otherwise noted.  
(-) = slotted head

- Refer to page 22 for dimensions and part No. of precision screws.

- Circled letters (A) to (Z) are applicable to European models only.



Note: Circled letters (A) to (Z) are applicable to European models only.

Ref. No. Part No. Description

SEMICONDUCTORS

Transistors

⇒ Q101, 201 8-729-663-47 (B) 2SC1364  
Q601, 602  
Q603 8-760-335-10 (B) 2SC1474

ICs

IC101, 201 8-751-820-00 (G) CX182  
IC102, 202 8-751-840-00 (F) CX184  
IC601 8-751-830-02 (E) CX183

Diodes

⇒ D601 8-719-422-21 (B) 1T22AM  
⇒ D602 8-719-815-55 (B) 1S1555  
D901 8-719-801-09 (B) TLR109

CAPACITORS

All capacitors are in  $\mu$ F and tantalum unless otherwise noted.  
50WV or less are not indicated except for electrolytics or tantalums. p :  $\mu$ F, elect : electrolytic

C101, 201	1-131-455-00 (B) 0.47	16V	
C102, 202	1-161-026-00 (A) 0.001		ceramic (semiconductor)
C103, 203	1-131-389-00 (B) 10	3.15V	
C104, 204	1-101-884-21 (A) 56p		ceramic
C105, 205	1-131-392-00 (B) 33	3.15V	
C106, 206	1-161-032-00 (A) 0.01		ceramic (semiconductor)
C107, 207	1-102-106-00 (A) 100p	50V	ceramic
C108, 208	1-131-389-00 (B) 10	3.15V	
C109, 209	1-161-017-11 (A) 0.022		ceramic (semiconductor)
C110, 210			
C111, 211	1-131-455-00 (B) 0.47	3.15V	
C112, 212			
C113, 213	1-131-419-00 (B) 2.2	10V	
C114, 214	1-161-004-00 (A) 0.0018		ceramic (semiconductor)
C115, 215	1-131-387-00 (B) 47	6.3V	

⇒ : Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

Ref. No. Part No. Description

C116, 216	1-161-035-00 (A) 0.033		ceramic (semiconductor)
C117, 217			
C118, 218	1-131-395-00 (B) 100	3.15V	
C119, 219			
C301	1-131-392-00 (B) 33	3.15V	
C601	1-131-392-00 (B) 33	3.15V	
C602	1-131-451-00 (B) 0.1	16V	
C603	1-131-455-00 (B) 0.47	16V	
C604, 605	1-131-392-00 (B) 33	3.15V	
C606	1-131-375-11 (B) 47	10V	
C607	1-131-383-00 (B) 10	6.3V	
C801	1-131-451-00 (A) 0.1	16V	
C901	1-123-296-00 (B) 220	6.3V	elect

RESISTORS

All resistors are in ohms. Common  $\frac{1}{4}$ W carbon resistors are omitted. Check schematic diagram for their values.

R101, 201	1-246-784-00 (A) 1.2k	1/8W	carbon
R102, 202	1-246-792-00 (A) 5.6k	1/8W	carbon
R103, 203	1-246-799-00 (A) 22k	1/8W	carbon
R104, 204	1-246-803-00 (A) 47k	1/8W	carbon
R105, 205	1-246-808-00 (A) 120k	1/8W	carbon
R106, 206	1-246-807-00 (A) 100k	1/8W	carbon
R107, 207	1-246-804-00 (A) 56k	1/8W	carbon
R108, 208	1-246-777-00 (A) 330	1/8W	carbon
R109, 209	1-246-782-00 (A) 820	1/8W	carbon
R110, 210	1-246-846-00 (A) 1.6k	1/8W	carbon
R111, 211	1-246-783-00 (A) 1.0k	1/8W	carbon
R112, 212	1-246-868-00 (A) 110k	1/8W	carbon
R113, 213	1-246-783-00 (A) 1.0k	1/8W	carbon
R114, 214	1-246-852-00 (A) 5.1k	1/8W	carbon
R115, 215	1-246-803-00 (A) 47k	1/8W	carbon
R116, 216	1-246-771-00 (A) 100	1/8W	carbon
R117, 217	1-246-764-00 (A) 27	1/8W	carbon
R301	1-246-807-00 (A) 100k	1/8W	carbon
R601	1-246-785-00 (A) 1.5k	1/8W	carbon
R602	1-246-807-00 (A) 100k	1/8W	carbon
R603	1-246-839-00 (A) 430	1/8W	carbon
R604	1-247-049-00 (A) 470k	1/8W	carbon
R605	1-247-807-00 (A) 100k	1/8W	carbon

**Note:** Circled letters (A to Z) are applicable to European models only.

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>		
R606	1-211-697-00	(A) 2.2M	1/16W	micro
R607	1-246-795-00	(A) 10k	1/8W	carbon
R608	1-246-764-00	(A) 27	1/8W	carbon
R609	1-246-773-00	(A) 150	1/8W	carbon
R610	1-246-795-00	(A) 10k	1/8W	carbon
R801, 802, R803, 804	1-246-754-00	(A) 3.9	1/8W	carbon
R810, 811	1-246-795-00	(A) 10k	1/8W	carbon
R812	1-246-788-00	(A) 2.7k	1/8W	carbon
R814	1-246-783-00	(A) 1.0k	1/8W	carbon
R815	1-246-847-00	(A) 2.0k	1/8W	carbon
RV101, 201	1-226-662-00	(B) 20k-A, variable;	VOLUME	
RV601	1-226-488-00	(B) 5k, adjustable		
SWITCHES				
S301	1-552-849-00	(B) Slide, TONE		
S801	1-553-086-00	(B) Pushbutton, HOT LINE		
S901	1-553-226-00	(B) Leaf		
MISCELLANEOUS				
J801	1-507-665-00	(C) Jack, HEADPHONES		
CNJ901	1-507-447-XX	(B) Jack, DC IN 3V		
HP901	8-829-373-00	(K) Playback Head, PP181-3602		
L601	1-407-847-00	(B) 35μH, microinductor		
M1	8-835-008-11	(S) Motor, MNF-1600B		
MIC901	8-814-198-91	(D) Microphone, C-1004Q		
THP601	1-800-535-00	(B) Thermistor		

PRINTED CIRCUIT BOARD

- ♣ 1-601-515-00 (B) Main Board
- ♣ 1-601-516-00 (B) Servo Amp Board
- ♣ 1-601-517-00 (B) AF Amp Board
- ♣ 1-601-518-00 (B) Jack Board

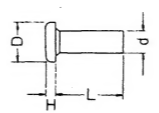
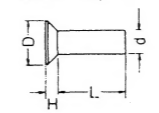
COMPLETE CIRCUIT BOARD

- ♣ A-3065-030-A Servo Amp
- ♣ A-3068-050-A Main
- ♣ A-3075-038-A Jack

ACCESSORIES AND PACKING MATERIALS

<i>Part No.</i>	<i>Description</i>
X-3568-718-0	(K) Carrying Case Ass'y
1-506-400-00	(E) Adaptor, plug (E model)
1-528-052-00	(E) Alkaline Battery, size AA (IEC designation R6) (US, Canadian, E model)
3-568-738-00	Bag, polyethylene
3-568-739-00	(B) Cushion, upper
3-568-741-00	(C) Cushion
3-568-751-00	(D) Carton
3-568-755-00	(C) Band, shoulder
3-701-622-00	(A) Bag, polyethylene
3-701-625-00	Bag, polyethylene (US model)
3-783-008-11	Manual, instruction (AEP, UK model)
3-783-008-21	(B) Manual, instruction (US model)
3-783-008-51	Manual, instruction (E, Canadian model)
3-793-233-21	Leaflet (US model)
3-794-790-51	Leaflet
8-893-522-00	(F) Tape, demonstration, CD-811
8-851-122-90	(Q) Headphone, MDR-3L2

DIMENSIONS AND PART NO. OF PRECISION SCREWS

TYPE	⊕ P (Pan-head screw)			⊕ K (Flat-countersunk-head screw)		
						
	d mm	H mm	D mm	d mm	H mm	D mm
TYPE 1	1.4	0.5	2	1.4	0.45	2
	2	0.6	3			
TYPE 3	1.4	0.8	2.5			

TYPE	Size (mm) (d x L)	Part No.		TYPE	Size (mm) (d x L)	Part No.	
		Silver	Black			Silver	Black
TYPE 1	P1.4 x 1.6		7-627-551-08	TYPE 3	P1.4 x 1.6	7-627-850-47	
	P1.4 x 2.5		7-627-551-28		P1.4 x 2		7-627-850-08
	P1.4 x 4		7-627-551-78		P1.4 x 2.5	7-627-850-17	7-627-850-18
	P2 x 4	7-627-553-47			P1.4 x 3	7-627-850-27	7-627-850-28
	K1.4 x 1.6		7-627-451-08		P1.4 x 3.5		7-627-850-58
	K1.4 x 3		7-627-451-28		P1.4 x 5	7-627-851-27	
	K1.4 x 3.5		7-627-451-48				

- Items marked "♣" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

Sony Corporation

9-954-823-11  
(W/MDR-3L2)

© 1979

-22-

79K04122-1  
Printed in Japan

# MDR-3L2

*US Model  
Canadian Model  
AEP Model  
UK Model  
E Model*



## STEREO HEADPHONES

### SPECIFICATIONS

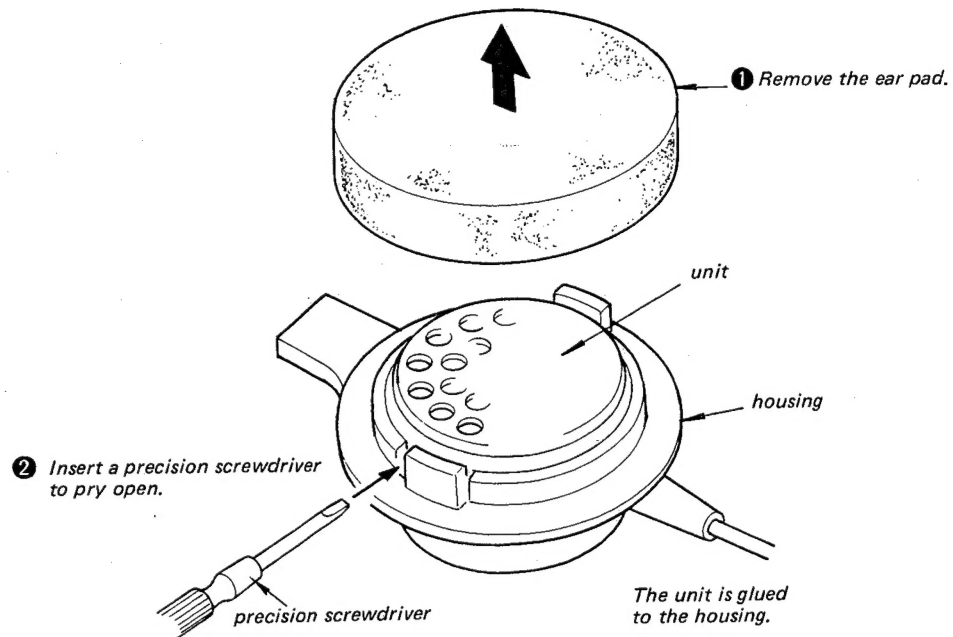
Type:	Dynamic
Driver Units:	23 mm dia., dome
Impedance:	35 $\Omega$ at 1 kHz
Sensitivity:	96 dB/mW
Rated Power:	0.15 W
Power Handling Capacity:	0.1 W
Frequency Response:	40 — 20,000 Hz
Cord Length:	2 m long with mini plug
Weight:	Approx. 45 g (without cord)

**SONY**<sup>®</sup>  
**SERVICE MANUAL**

## 1. DISASSEMBLY

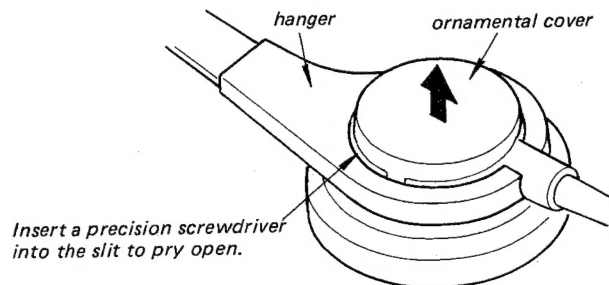
Note: Follow the disassembly procedure in the numerical order given.

### UNIT REMOVAL

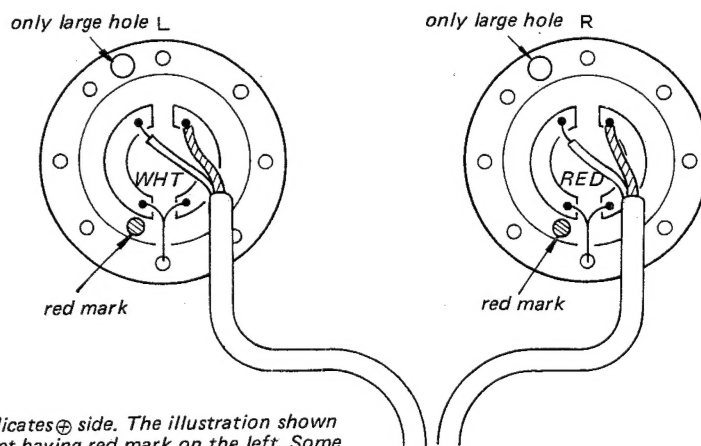


### CORD REPLACEMENT

The replacement of the cord should be done after the ornamental cover removal. (The ornamental cover is glued to the hanger.)

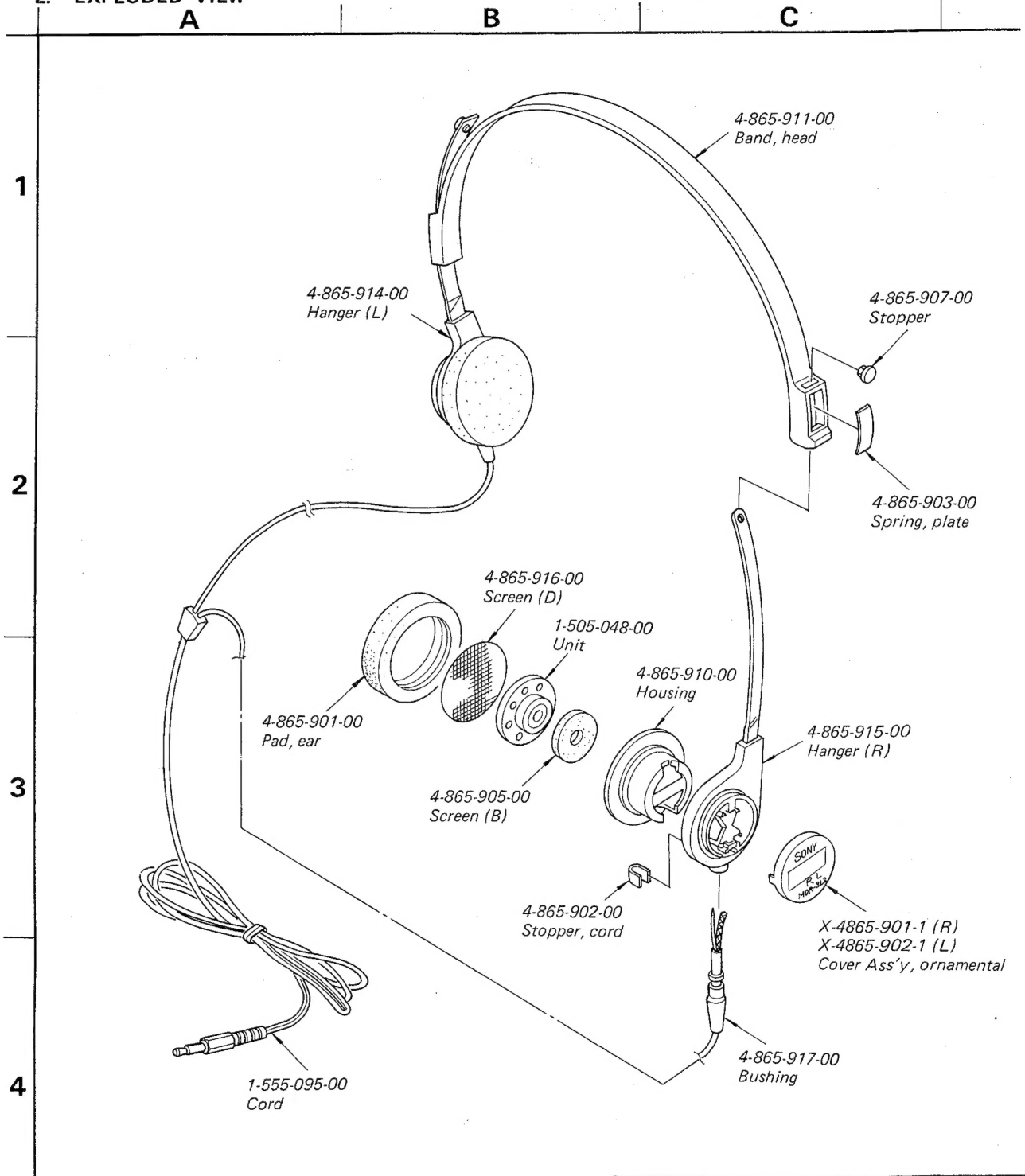


### WIRING DIAGRAM



Red mark indicates ⊕ side. The illustration shown above is the set having red mark on the left. Some sets have red mark on the right.

## 2. EXPLODED VIEW



## ACCESSORIES AND PACKING MATERIALS

<u>Part No.</u>	<u>Description</u>
1-506-400-00	Adaptor, plug
3-701-624-00	Bag
3-770-997-11	Manual, instruction
4-865-919-00	Carton
3-568-738-00	Bag, polyethylene (headphone)